



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/812,274	03/29/2004	Sean T. Crowley	AMKOR-022CB1	2255
7663	7590	01/03/2006	EXAMINER	
STETINA BRUNDA GARRED & BRUCKER			LE, THAO X	
75 ENTERPRISE, SUITE 250				
ALISO VIEJO, CA 92656			ART UNIT	PAPER NUMBER
			2814	

DATE MAILED: 01/03/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

88

Office Action Summary	Application No.	Applicant(s)	
	10/812,274	CROWLEY ET AL.	
	Examiner	Art Unit	
	Thao X. Le	2814	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 Dec. 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-3, 5-9, 11-14, 16-20 are rejected under 35 U.S.C. 102(e) as being anticipated by US 6686649 to Mathews et al.

Regarding claims 1 and 13, Mathews discloses a semiconductor package in fig. 2 comprising: a single non-conductive film layer 102, column 4 lines 31 defining opposed top and bottom film surfaces 102U/102L and a peripheral edge, fig. 1, the film layer 102 including a plurality of vias 116 disposed therein; a plurality of upper leads 110 disposed on the top film surface 102U adjacent respective ones of the vias 116; a plurality of lower leads 114 disposed on the bottom film 102L surface adjacent respective ones of the vias 116, each of the lower leads 114 being electrically connected to a respective one of the upper leads 110; a plurality of transmission line elements 136, column 5 lines 27 and lines 47-52, disposed on the top film surface 102U and electrically connected to at least one of the upper leads 110, fig. 1, at least one semiconductor die 104 attached to the top film surface 102U and electrically connected

to at least one of the upper leads 110 and the transmission line element 136, fig. 1, a package body 154, col. 6 line 1, disposed on the film layer 102 and extending to the peripheral edge thereof, the package body 154 covering the semiconductor die 104, the upper leads 110, the transmission line elements 136, and the top film surface 102U, fig. 2.

Regarding claim 2, Mathews discloses the semiconductor package comprising a plurality of transmission line elements 136, fig. 1 column 5 line 50, on the top film surface 102U, the semiconductor die 104 being electrically connected to at least one of the transmission line elements 136.

Regarding claims 3, 5-6, 14, Mathews discloses the semiconductor package wherein the transmission line elements 136 are selected from the group consisting of: an balun, column 5 line 50, and wherein the semiconductor die 104 is electrically connected to the upper lead 110 and to the transmission line element 136 by respective ones of a plurality of bond wires 112, column 3 line 54, wherein at least some of the upper leads 110 each include a conductive trace 110A connected thereto and extending therefrom, the bond wires 112 being used to electrically connect the semiconductor die 104 to at least one of the traces 110A, fig. 2.

Regarding claims 7-8 and 16-17, Mathews discloses the semiconductor package further comprising a plurality of pads (each connection point would have a pad), fig. 2, disposed on the top film surface and electrically connected to respective ones of the upper leads 110, the pads being arranged in at least one set which is configured to

accommodate a passive device 136, wherein the pads are arranged in multiple sets, each of the sets being configured to accommodate a passive device (antenna) 136.

Regarding claims 9, 18, Mathews discloses the semiconductor package wherein the vias 116/126 are segregated into an outer set 126 which extends along and in relative close proximity to a peripheral edge of the non-conductive sheet 102, and an inner set 116 which is disposed within the outer set 126, fig. 2.

Regarding claims 11-12, 19-20, Mathews discloses the semiconductor package wherein each of the vias 116 is lined or filled with a conductive metal material to facilitate the electrical connection of the upper leads to respective ones of the lower leads, fig. 2.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to

consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Claims 4, 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 6686649 to Mathews et al. in view of US Pub 2003/0020502 to Sugihara et al.

Regarding claims 4 and 15, Mathews discloses the semiconductor package the lower lead 114, upper lead 110, and the transmission line 136 element each include a conductive material.

But Mathews does not disclose the semiconductor package wherein the lower lead and upper lead and the transmission line element each include a nickel/gold plated thereon.

However, Sugihara discloses a conductive line on the polyimide substrate in fig. 8(a-g) comprising a Cu/Ni/Au. At the time the invention was made; it would have been obvious to one of ordinary skill in the art to use the Cu/Ni/Au conductive line teaching of Sugihara with Mathews's conductive line, because it would have prevented reflection from the terminal of the electrical transmission line as taught by Sugihara, see abstract.

6. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over US 6686649 to Mathews et al. in view of US 6757178 to Okabe et al.

Regarding claim 10, Mathews does not disclose the semiconductor package wherein the non-conductive sheet 102 is fabricated from a polyimide film.

But, Mathews discloses the on-conductive film 102 comprises printed circuit board or tape. In addition,

In addition, Okabe discloses an ordinary printed circuit board, an epoxy resin, or polyimide can be used as a non-conductive film, column 5 lines 61-63. At the time the invention was made; it would have been obvious to one of ordinary skill in the art to use the non-conductive film teaching of Okabe in Mathews's device because such non-conductive film is typical in the art as disclosed by Okabe.

Response to Arguments

7. Applicant's arguments filed 02 Dec. 2005 have been fully considered but they are not persuasive. The Applicant argues that Mathews does not disclose a peripheral, a package body disposed on the film layer and extending to the peripheral edge thereof, and plurality transmission line elements. The Examiner respectfully submits that Mathews discloses in fig. 1 comprises a peripheral edge, a package body 154 disposed on the film layer 102 and extending to the peripheral edge thereof, and plurality transmission line elements, col. 45-52.

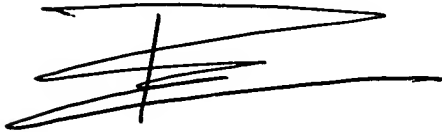
Conclusion

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thao X. Le whose telephone number is (571) 272-1708. The examiner can normally be reached on M-F from 8:00 AM - 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wael M. Fahmy can be reached on (571) 272 -1705. The fax phone

number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, consisting of several overlapping horizontal and diagonal strokes, positioned above the printed name.

Thao X. Le
Patent Examiner
20 Dec. 2005